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Research Article

Pholcid spiders of the genus *Pholcus* Walckenaer, 1805 (Araneae, Pholcidae) from eastern Sichuan, China, with descriptions of two new species

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Abstract

The spider genus *Pholcus* Walckenaer, 1805 exhibits high diversity in eastern Sichuan, China, and 19 species have been recorded in this area so far. In this study, two additional new species of *Pholcus* from north of the Sichuan Basin are described, *Pholcus jiuzhai* Yan, Li & Yao, **sp. nov.** (♂♀) from the *crypticolens* group and *Pholcus pingwu* Yan, Li & Yao, **sp. nov.** (♂♀) from the *yichengicus* group. In addition, an updated list of all *Pholcus* species from eastern Sichuan is provided.

Key words: Biodiversity, cellar spider, invertebrate, morphology, taxonomy

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Introduction

Pholcus Walckenaer, 1805 is the most diverse genus of the family Pholcidae C.L. Koch, 1850, and it is mainly distributed in the Afrotropical, Palaearctic, Indo-Malayan, and Australasian regions (e.g. Huber 2011; Yao and Li 2012, 2025; WSC 2025). This genus includes 21 species groups and 427 species (Huber 2011; Huber et al. 2018; WSC 2025). China exhibits the greatest diversity of *Pholcus* species (Zhang et al. 2025), and 193 species have been recorded, accounting for 45% of the global total for this group (WSC 2025).

Recently, a series of studies of *Pholcus* have been carried out in northern and central China, based on morphological and molecular data. The survey areas include the Changbai Mountains, the mountainous regions between the Changbai and Yanshan-Taihang Mountains in northeastern China (Lu et al. 2021; Yao et al. 2021; Zhao et al. 2023a; Li et al. 2024, 2025a), the Yanshan-Taihang Mountains and the Lüliang Mountains in northern China (Lu et al. 2022a, b; Zhao et al. 2023b), and the Qinling Mountains in central China (Yang et al. 2024a, b).

In 2025, the diversity of *Pholcus* was surveyed in eastern Sichuan, southwestern China, and found 12 species, including five newly described species (Li et al. 2025b). Nevertheless, the majority of these species are distributed in west of the Sichuan Basin. Based on the current distribution pattern of this genus in eastern Sichuan, it is likely that the genus is also present in the highlands

of southwest and north of the Sichuan Basin. In this study, two new species of *Pholcus* from north of the Sichuan Basin are described (Fig. 1). An updated list of all *Pholcus* species from eastern Sichuan is also provided (Table 1).

Materials and methods

Specimens were examined and measured with a Leica M205 C stereomicroscope. Left male palps were photographed. Epigynes were photographed before dissection. Vulvae were photographed after treating them in a 10% warm solution of potassium hydroxide (KOH) to dissolve soft tissues. Images were captured with a Canon EOS 750D wide zoom digital camera (24.2 megapixels) mounted on the stereomicroscope mentioned above and assembled using Helicon Focus v. 3.10.3 image-stacking software (Khmelik et al. 2005). All measurements are given in millimetres (mm). Leg measurements are shown

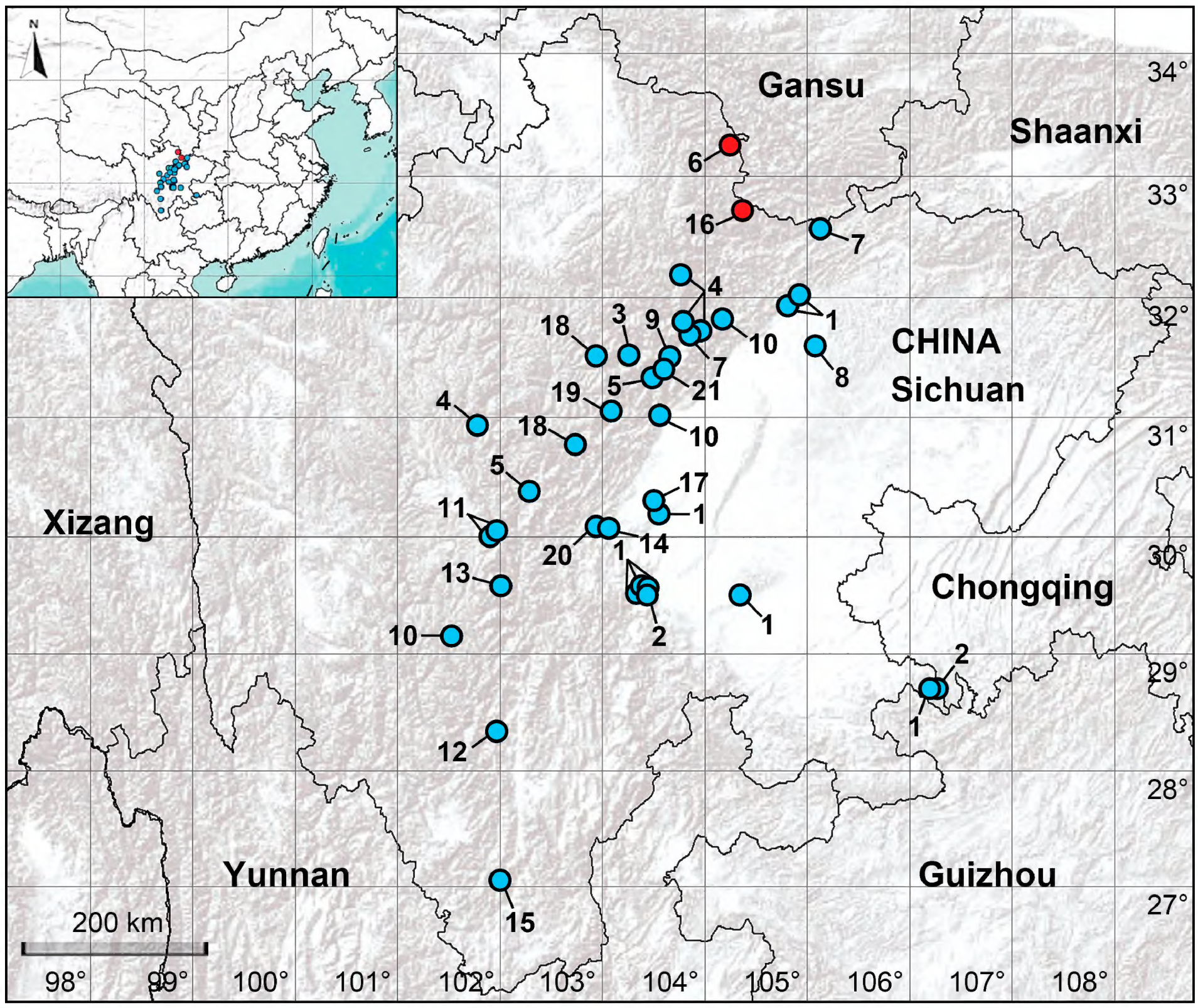

Figure 1. Distribution records of the *Pholcus* spiders from eastern Sichuan. The *bidentatus* group: **1.** *P. bidentatus*; **2.** *P. kimi*; the *crypticolens* group: **3.** *P. aba*; **4.** *P. chang*; **5.** *P. ganziensis*; **6.** *P. jiuzhai* sp. nov.; **7.** *P. manueli*; **8.** *P. spilis*; **9.** *P. wenchuan*; the *yichengicus* group: **10.** *P. jiulong*; **11.** *P. kangding*; **12.** *P. kunming*; **13.** *P. luding*; **14.** *P. mengding*; **15.** *P. miyi*; **16.** *P. pingwu* sp. nov.; **17.** *P. qingchengensis*; **18.** *P. qinghaiensis*; **19.** *P. taibaiensis*; **20.** *P. yaan*; **21.** *P. zhangae*. Blue and red circles represent previously recorded species and new species, respectively.

Table 1. A list of all *Pholcus* species from eastern Sichuan.

Species	Collection locality	References
***bidentatus* group**		
P. bidentatus	Sichuan, Leshan, Emeishan, Huangwan Town, Emeishan Scenic Spot (including two localities)	Huber 2011
	Sichuan, Luzhou, Hejiang County, Zihuai Town	Zhang and Zhu 2009
	Sichuan, Leshan, Emeishan, Huangwan Town, Emeishan Scenic Spot, Fuhu Temple	Zhang and Zhu 2009
	Sichuan, Mianyang, Jiangyou, Zhonghua Town, Laojunshan Scenic Spot	Li et al. 2025b
	Sichuan, Mianyang, Jiangyou, Yongsheng Town, Xinbei Village	Li et al. 2025b
	Sichuan, Chengdu, Pujiang County, Kakadian, Jinma Village	Li et al. 2025b
	Sichuan, Zigong, Cao County, Gaoshiti Forest Park	Li et al. 2025b
P. kimi	Sichuan, Luzhou, Hejiang County, Zihuai Town	Zhang et al. 2004
	Sichuan, Leshan, Emeishan, Huangwan Town, Emeishan Scenic Spot, near Fuhu Temple and Baoguo Temple	Zhang et al. 2004
***crypticolens* group**		
P. aba	Sichuan, Aba, Li County, Xindianzi	Li et al. 2025b
P. chang	Sichuan, Ganzi, Danba County, Geshizha Town, Waba Village	Yao and Li 2012
	Sichuan, Aba, Mao County, Chuanwen Road	Li et al. 2025b
	Sichuan, Aba, Songpan County, G213 Road	Li et al. 2025b
	Sichuan, Aba, Mao County, Mati Village	Li et al. 2025b
P. ganziensis	Sichuan, Ganzi, Kangding County, Jintang Town, Jintang River	Yao and Li 2012
	Sichuan, Aba, Wenchuan County, Dayu Grange	Li et al. 2025b
P. jiuzhai sp. nov.	Sichuan, Aba, Jiuzhaigou County	This paper
P. manueli	Sichuan, Guangyuan, Qingchuan County	Zhang and Zhu 2009
	Sichuan, Aba, Mao County, Chuanwen Road	Li et al. 2025b
P. spilis	Sichuan, Mianyang, Zitong County, Wolong Town, Wolongshan Scenic Spot	Zhang and Zhu 2009
P. wenchuan	Sichuan, Aba, Wenchuan County, Qingpo Village	Li et al. 2025b
***yichengicus* group**		
P. jiulong	Sichuan, Ganzi, Jiulong County, Tanggu Town, Helagou	Tong and Li 2010
	Sichuan, Mianyang, Beichuan County, Dunqing Road, Zaoerping	Li et al. 2025b
	Sichuan, Dujiangyan, Houzhi Grange	Li et al. 2025b
P. kangding	Sichuan, Ganzi, Kangding County	Zhang and Zhu 2009
	Sichuan, Ganzi, Kangding County, Paoma Hill	Tong and Li 2010
P. kunming	Sichuan, Liangshan, Mianning County, Lizhuang Town, Dishuiyan	Li et al. 2025b
P. luding	Sichuan, Ganzi, Luding County, Moxi Town, Hailuogou National Natural Reserve, Caohaizi	Tong and Li 2010
P. mengding	Sichuan, Yaan, Yucheng District, Mengdingshan Scenic Spot	Li et al. 2025b
P. miyi	Sichuan, Panzhihua, Miyi County, Puwei Town, Pengjiayakou Village	Li et al. 2025b
P. pingwu sp. nov.	Sichuan, Mianyang, Pingwu County, Baima Town	This paper
P. qingchengensis	Sichuan, Chengdu, Dujiangyan, Qingcheng Mountain	Gao et al. 2002
P. qinghaiensis	Sichuan, Yaan, Baoxing County, Yaoji Town, Zegen Village	Tong and Li 2010
	Sichuan, Aba, Li County, Shiziping	Li et al. 2025b
P. taibaiensis	Sichuan, Aba, Wenchuan County, Wolong Town, Wolong Natural Reserve	Zhang and Zhu 2009
P. yaan	Sichuan, Yaan, Lushan County, Longdongpo	Li et al. 2025b
P. zhangae	Sichuan, Aba, Wenchuan County	Zhang and Zhu 2009

as: total length (femur, patella, tibia, metatarsus, tarsus). Leg segments were measured on their dorsal side. The distribution map was generated with ArcGIS v. 10.2 (ESRI Inc.). The specimens studied are deposited in the College of Life Science, Shenyang Normal University (SYNU) in Liaoning, China.

Terminology and taxonomic descriptions follow Huber (2011) and Yao et al. (2015, 2021). The following abbreviations are used: **a** = appendix, **aa** = anterior

arch, **ALE** = anterior lateral eye, **AME** = anterior median eye, **b** = bulb, **da** = distal apophysis, **dp** = distal process, **ds** = dorsal spines, **dsa** = dorso-subdistal apophysis, **e** = embolus, **fa** = frontal apophysis, **kn** = knob, **L/d** = length/diameter ratio, **mb** = median branch, **pa** = proximo-lateral apophysis, **PME** = posterior median eye, **pp** = pore plate, **pr** = procursus, **pra** = proximal apophysis, **psa** = prolatero-subdistal apophysis, **pvp** = prolatero-ventral protrusion, **rdp** = retrolatero-distal process, **rpa** = retrolatero-proximal apophysis, **sl** = subdistal lamella, **u** = uncus, **va** = ventral apophysis, **vp** = ventral protrusion.

Taxonomic accounts

Family Pholcidae C.L. Koch, 1850
Subfamily Pholcinae C.L. Koch, 1850

Genus *Pholcus* Walckenaer, 1805

Type species. *Aranea phalangioides* Fuesslin, 1775.

Pholcus crypticolens species group

This species group can be distinguished by the combination of the following characters: male chelicerae with proximo-lateral, distal and frontal apophyses (pa, da, fa); procursus (pr) with dorsal spines (ds); appendix (a) triangular to T-shaped; epigyne sclerotized, with knob (kn) (Huber 2011). The new species below is assigned to this group because its morphological characters are consistent with those as listed above. This species group includes 13 previously described species and is mainly distributed in East Asia (e.g. Huber 2011; Yao and Li 2012; Dong et al. 2016; Li et al. 2025b). Among them, 12 species have been recorded from China. One species is newly described below.

***Pholcus jiuzhai* Yan, Li & Yao, sp. nov.**
https://zoobank.org/AA399CDD-1F44-4D99-A45B-8121D5D4E754
Figs 2, 3, 6A

Type material. ***Holotype*:** China • ♂; Sichuan, Aba, Jiuzhaigou County; 33.2458°N, 104.2516°E; alt. 1456 m; 24 May 2013; X. Jiang leg.; SYNU-Ar00502. ***Paratypes*:** China • 7♂; same data as for the holotype; SYNU-Ar00503–509 • 4♀; same data as for the holotype; SYNU-Ar00510–513.

Etymology. The specific name refers to the type locality; it is used as a noun in apposition.

Diagnosis. The new species resembles *P. zichyi* Kulczyński, 1901 (under "*P. crypticolens*" in Zhang and Zhu 2009: 23, fig. 8; Huber 2011: 358, figs 1725, 1726) by having similar male chelicerae (Fig. 3B) and epigyne (Fig. 3C), but can be distinguished by procursus (pr) with weakly sclerotized pointed distal apophysis (da in Fig. 2C vs absent) and dorso-median part of procursus (pr) strongly protruding (arrow in Fig. 2A, B vs very slightly protruding), by proximal part of appendix 1/2 wider than distal part (a in Fig. 3A vs 1/4), by vulval ante-

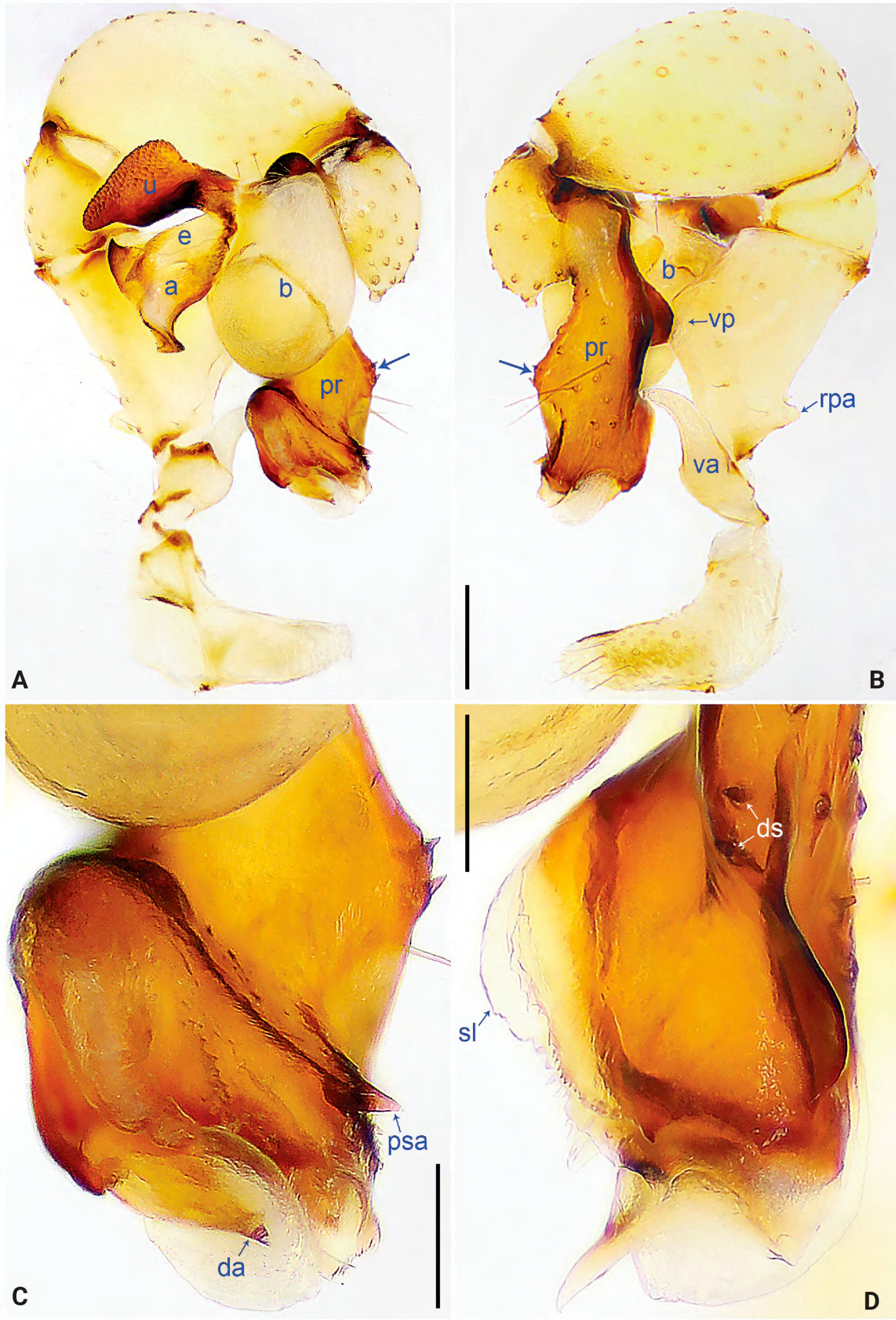

Figure 2. *Pholcus jiuzhai* sp. nov., holotype male. **A.** Palp, prolateral view; **B.** Palp, retrolateral view, arrow points to protruding dorso-median part; **C.** Distal part of procursus, prolateral view; **D.** Distal part of procursus, dorsal view. Scale bars: 0.20 mm (**A, B**); 0.10 mm (**C, D**).

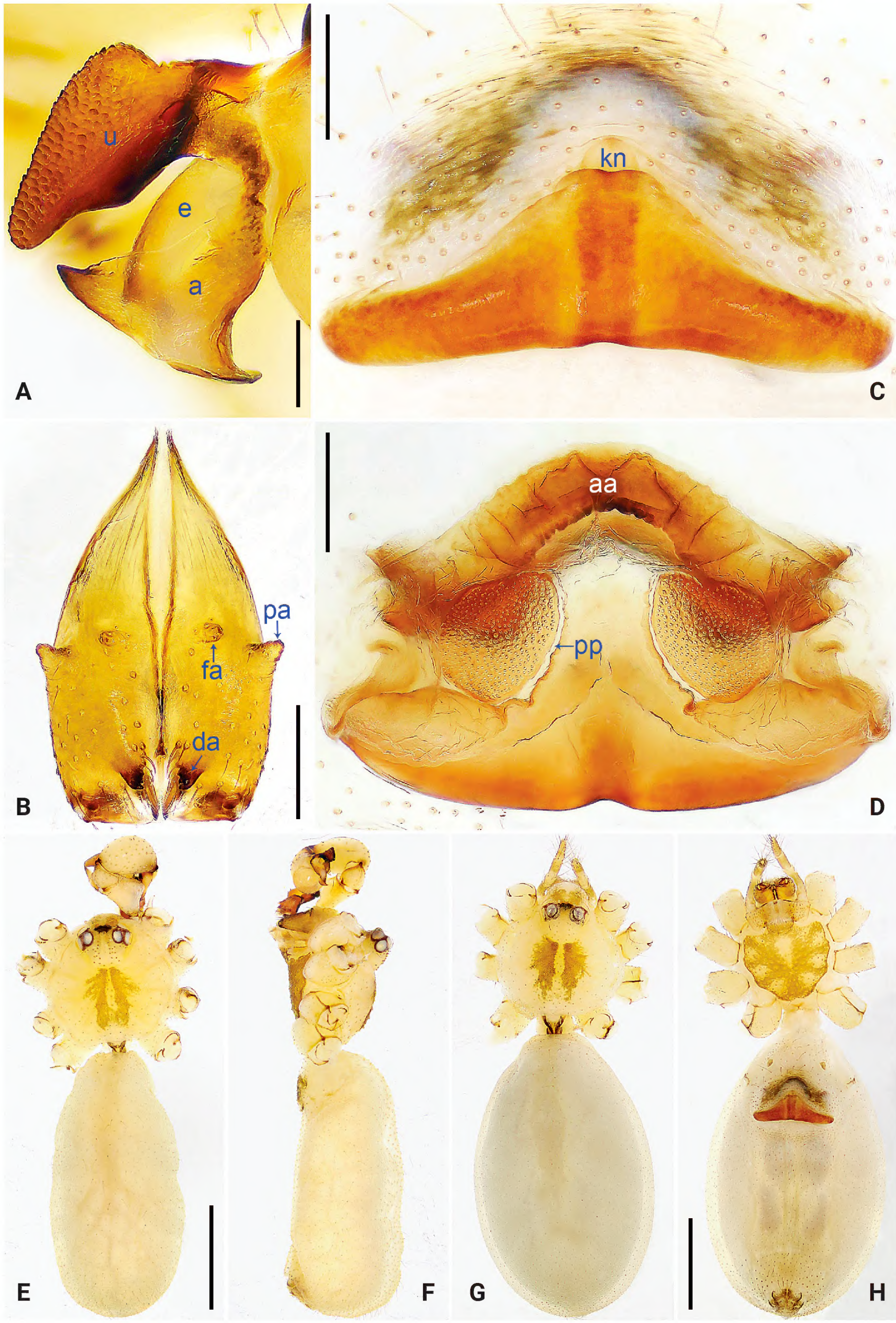

Figure 3. *Pholcus jiuzhai* sp. nov., holotype male (**A, B, E, F**) and paratype female (**C, D, G, H**). **A.** Bulbal apophyses, prolateral view; **B.** Chelicerae, frontal view; **C.** Epigyne, ventral view; **D.** Vulva, dorsal view; **E, G.** Habitus, dorsal view; **F.** Habitus, lateral view; **H.** Habitus, ventral view. Scale bars: 0.10 mm (**A**); 0.20 mm (**B–D**); 1.00 mm (**E–H**).

rior arch medially strongly curved (aa in Fig. 3D vs very slightly curved), and by carapace without marginal brown bands (Fig. 3E, G vs present).

Description. Male (*holotype*) *measurements*: total length 3.77 (3.86 with clypeus), carapace 1.18 long, 1.29 wide, opisthosoma 2.59 long, 1.28 wide. ***Leg I*:** 27.64 (7.02, 0.52, 7.31, 10.83, 1.96), ***leg II*:** 18.12 (5.00, 0.52, 4.75, 6.75, 1.10), ***leg III*:** 12.80 (3.80, 0.45, 3.06, 4.68, 0.81), ***leg IV*:** 16.83 (5.16, 0.42, 4.29, 5.96, 1.00); ***tibia I L/d*:** 60. ***Eye interdistances and diameters*:** PME–PME 0.20, PME 0.12, PME–ALE 0.04, AME–AME 0.03, AME 0.06. ***Sternum width/length*:** 0.88/0.78.

***Colour*:** carapace yellowish, with median brown marks; ocular area yellowish; clypeus and sternum yellowish, with brown marks (Fig. 3E, F). Legs yellowish, but brown on patellae and whitish on distal parts of femora and tibiae, without darker rings on femora and tibiae. Opisthosoma yellowish, without spots.

***Body*:** as in Fig. 3E, F; ocular area elevated, without eye-stalks.

***Chelicerae*:** as in Fig. 3B, with pair of proximo-lateral apophyses (pa), pair of distal apophyses (da) with two teeth each, and pair of frontal apophyses (fa).

***Palp*:** as in Fig. 2A, B; trochanter with long (3× longer than wide) ventral apophysis (va); femur with retrolatero-proximal apophysis (rpa) and distinct ventral protrusion (vp). Procursus (pr) simple proximally, but complex distally, with raised prolatero-subdistal edge bearing subdistal lamella (sl) and weakly sclerotized pointed distal apophysis (da), pointed prolatero-subdistal apophysis (psa), and two strong dorsal spines (ds). Bulb: uncus (u) with proximal apophysis (pra, visible in Fig. 6A) and scales; appendix (a) nearly T-shaped; embolus (e) weakly sclerotized, with transparent distal projections (Fig. 6A).

***Legs*:** retrolateral trichobothrium on tibia I situated at 3% proximally; legs with short vertical setae on tibiae, metatarsi, and tarsi; tarsus I with 38 distinct pseudosegments.

Female (***paratype***, SYNU-Ar00510): similar to male, habitus as in Fig. 3G, H. Total length 4.48 (4.63 with clypeus), carapace 1.32 long, 1.40 wide, opisthosoma 3.16 long, 1.99 wide; ***tibia I*:** 6.15; tibia I L/d: 44. ***Eye interdistances and diameters*:** PME–PME 0.17, PME 0.13, PME–ALE 0.04, AME–AME 0.05, AME 0.06. ***Sternum width/length*:** 0.95/0.88. ***Epigyne*** (Fig. 3C) nearly triangular, with knob (kn). ***Vulva*** (Fig. 3D) with sclerotized, medially strongly curved anterior arch (aa) and pair of nearly round pore plates (pp).

Variation. Tibia I in seven male paratypes (SYNU-Ar00503–509): 6.22–8.72. Tibia I in the other three female paratypes (SYNU-Ar00511–513): 5.71, 6.09, 6.99.

Habitat. Underside of overhang on rocky cliffs in mountainous area.

Distribution. Known only from the type locality (Fig. 1).

Pholcus yichengicus species group

This species group can be distinguished by the combination of the following characters: male chelicerae with proximo-lateral, distal and frontal apophyses (pa, da, fa); male palpal trochanter apophyses retrolatero-proximally strongly bulged; male palpal tibia with prolatero-ventral protrusion (pvp); procursus (pr) with dorsal spines (ds); appendix (a) usually branched; epigyne sclerotized, with knob (kn) (Huber 2011; Zhu et al. 2018; Yang et al. 2024a). The new species below is assigned to this group because its morphological characters are

consistent with those as listed above. This species group includes 51 previously described species and is mainly distributed in central and southern China, as well as northern Thailand (e.g. Huber 2011; Zhu et al. 2018; Lu et al. 2022b; Li et al. 2024; Yang et al. 2024a, b; Li et al. 2025b). Among them, 47 species have been recorded from China. One species is newly described below.

Pholcus pingwu **Yan, Li & Yao, sp. nov.**
https://zoobank.org/4FF41E4D-7029-46EC-BD84-28D57A62CB05
Figs 4, 5, 6B

Type material. ***Holotype*****:** China • ♂; Sichuan, Mianyang, Pingwu County, Baima Town; 32.7130°N, 104.3770°E; alt. 1801 m; 14 Oct. 2018; Z. Zhang, L. Wang & Z. Fan et al. leg.; SYNU-Ar00514. ***Paratypes*****:** China • 5 ♂; same data as for the holotype; SYNU-Ar00515–519 • 4 ♀; same data as for the holotype; SYNU-Ar00520–523.

Etymology. The specific name refers to the type locality; it is used as a noun in apposition.

Diagnosis. The new species resembles *P. qingchengensis* Gao, Gao & Zhu, 2002 (only ♂; Zhang and Zhu 2009: 72, fig. 40; Yao and Li 2012: 30, fig. 146) by having similar appendix (a in Fig. 5A) and sclerotized dorso-subdistal apophysis (dsa in Fig. 4C) on procursus (pr), but can be distinguished by procursus (pr) without sclerotized retrolatero-distal apophysis (Fig. 4B vs present) and distal membranous process (dp) of procursus without pointed branch (Fig. 4C vs present), by uncus (u) latero-medially strongly contracted (arrow in Fig. 5A vs slightly contracted), and by male chelicerae with one pair of frontal apophyses (fa in Fig. 5B vs two pairs).

Description. Male (***holotype***) ***measurements*****:** total length 6.82 (6.98 with clypeus), carapace 1.97 long, 2.30 wide, opisthosoma 4.85 long, 1.91 wide. ***Leg I*****:** 62.60 (15.58, 0.91, 15.83, 26.92, 3.36), ***leg II*****:** 39.06 (10.71, 0.90, 9.97, 15.51, 1.97), ***leg III*****:** 26.02 (7.66, 0.83, 6.41, 9.90, 1.22), ***leg IV*****:** 34.91 (10.38, 0.86, 8.64, 13.30, 1.73); ***tibia I L/d*****:** 83. ***Eye interdistances and diameters*****:** PME–PME 0.31, PME 0.20, PME–ALE 0.06, AME–AME 0.09, AME 0.13. ***Sternum width/length*****:** 1.52/1.32.

Colour**:** carapace yellowish, with brown radiating marks and marginal brown bands; ocular area yellowish; clypeus and sternum yellowish, with brown marks (Fig. 5E, F). Legs yellowish, but dark brown on patellae and whitish on distal parts of femora and tibiae, with darker rings on subproximal, submedian, and subdistal parts of femora and proximal, subproximal, submedian, and subdistal parts of tibiae. Opisthosoma yellowish, with dorsal and lateral spots (Fig. 5E, F).

Body**:** as in Fig. 5E, F; ocular area elevated, each eye triad on top of laterally directed eye-stalks.

Chelicerae**:** as in Fig. 5B, with pair of proximo-lateral apophyses (pa), pair of distal apophyses (da) with two teeth each, and pair of frontal apophyses (fa).

Palp**:** as in Fig. 4A, B; trochanter with short (2× longer than wide), retrolatero-proximally strongly bulged ventral apophysis (va); femur with retrolatero-proximal apophysis (rpa) and distinct ventral protrusion (vp); tibia with prolatero-ventral protrusion (pvp). Procursus (pr) simple proximally, but complex distally, with raised prolatero-subdistal edge bearing distal membranous process (dp) and sclerotized dorso-subdistal apophysis (dsa), retrolatero-distal

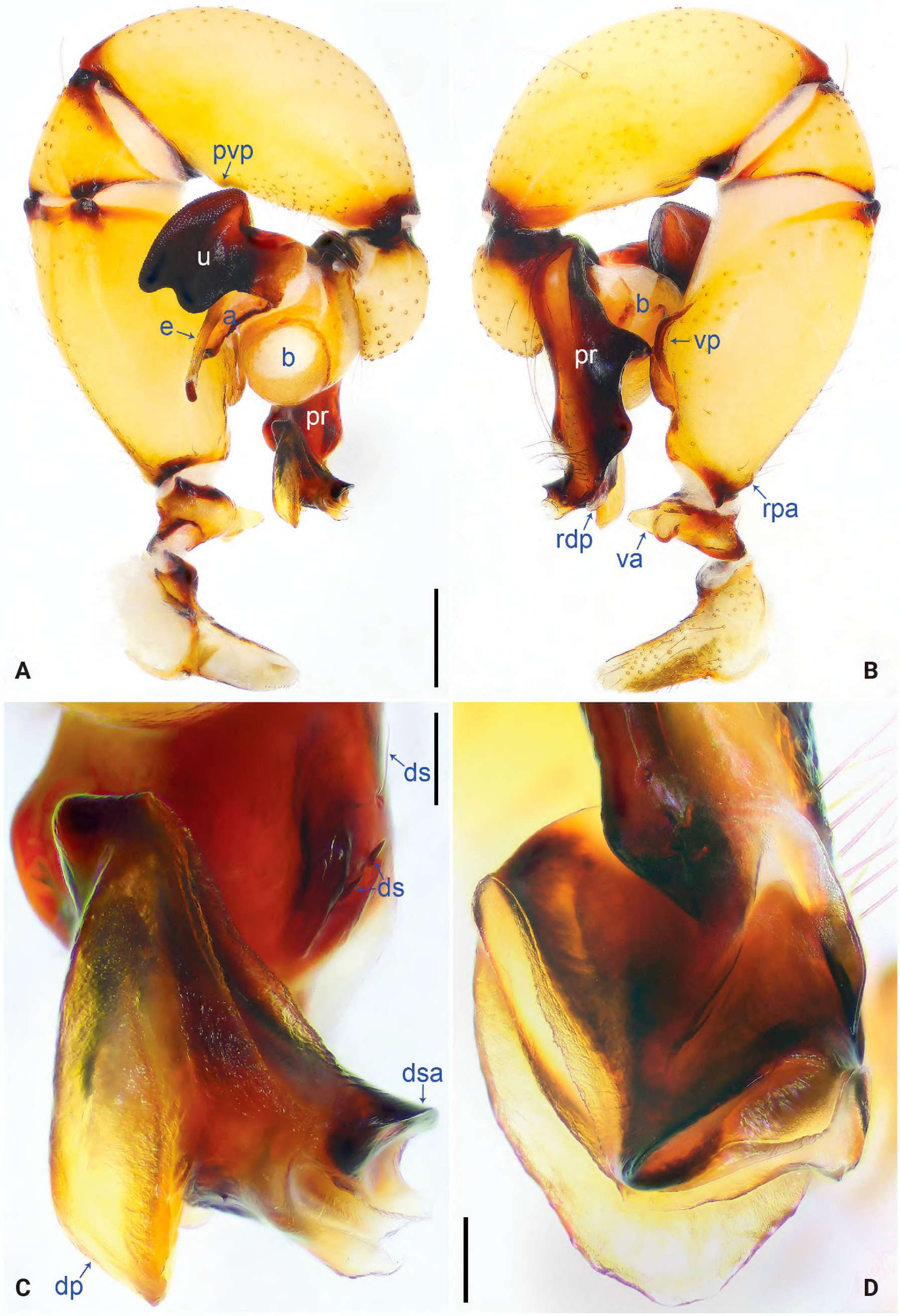

Figure 4. *Pholcus pingwu* sp. nov., holotype male. **A.** Palp, prolateral view; **B.** Palp, retrolateral view; **C.** Distal part of procursus, prolateral view; **D.** Distal part of procursus, dorsal view. Scale bars: 0.50 mm (**A, B**); 0.10 mm (**C, D**).

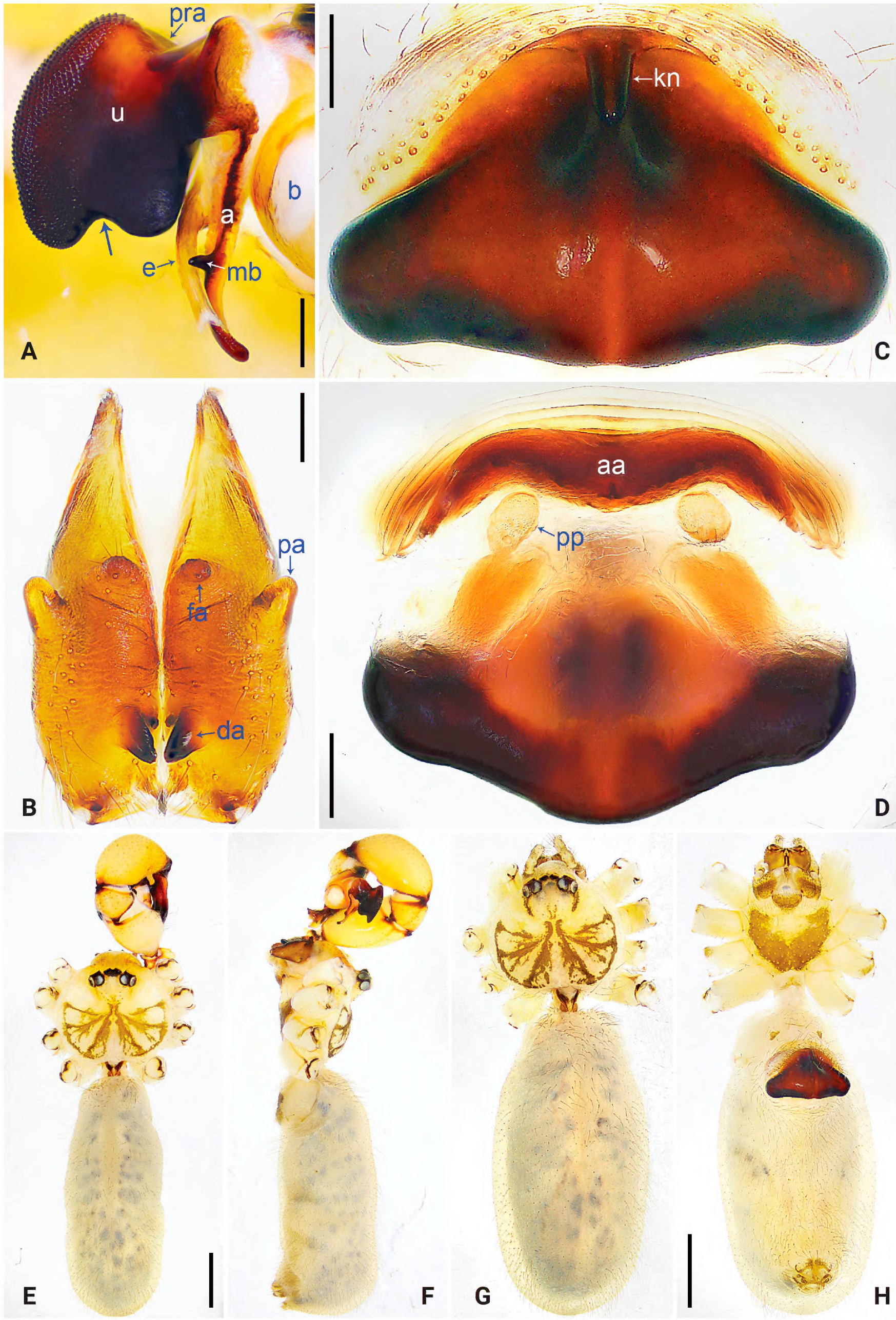

Figure 5. *Pholcus pingwu* sp. nov., holotype male (**A, B, E, F**) and paratype female (**C, D, G, H**). **A.** Bulbal apophyses, prolateral view, arrow points at latero-medially contracted part; **B.** Chelicerae, frontal view; **C.** Epigyne, ventral view; **D.** Vulva, dorsal view; **E, G.** Habitus, dorsal view; **F.** Habitus, lateral view; **H.** Habitus, ventral view. Scale bars: 0.20 mm (**A–D**); 1.00 mm (**E–H**).

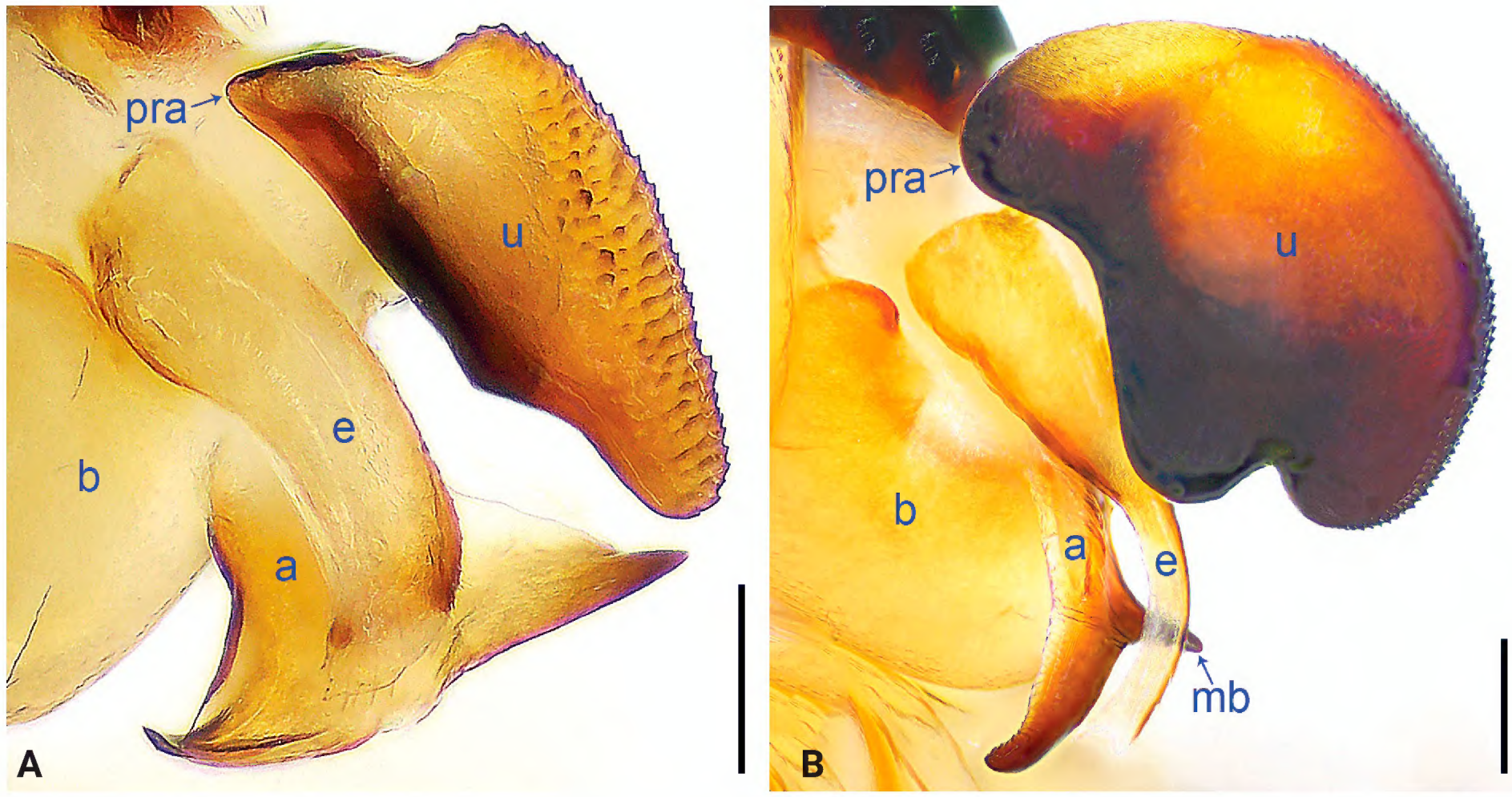

Figure 6. Bulbal apophyses, retrolatero-ventral views. **A.** *Pholcus jiuzhai* sp. nov.; **B.** *P. pingwu* sp. nov. Scale bars: 0.10 mm (**A**); 0.20 mm (**B**).

membranous process (rdp), and two strong and one slender dorsal spines (ds). Bulb: uncus (u) latero-medially contracted, with proximal apophysis (pra, visible in Fig. 6B) and distally scaly edge; appendix (a) curved, with distal scales and angular median branch (mb); embolus (e) weakly sclerotized, with transparent distal projections (Figs 5A, 6B).

***Legs*:** retrolateral trichobothrium on tibia I situated at 3% proximally; legs with short vertical setae on tibiae, metatarsi, and tarsi; tarsus I with 39 distinct pseudosegments.

Female (***paratype***, SYNU-Ar00520): similar to male, habitus as in Fig. 5G, H. Total length 5.70 (6.00 with clypeus), carapace 1.50 long, 1.83 wide, opisthosoma 4.20 long, 2.03 wide; ***tibia I*:** 10.83; tibia I L/d: 68. ***Eye interdistances and diameters*:** PME–PME 0.21, PME 0.17, PME–ALE 0.07, AME–AME 0.08, AME 0.10. ***Sternum width/length*:** 1.19/0.85. Ocular area with lateral brown bands. ***Epigyne*** (Fig. 5C) nearly triangular, strongly sclerotized, with knob (kn). ***Vulva*** (Fig. 5D) with laterally strongly curved anterior arch (aa) and pair of elliptic pore plates (pp).

Variation. Tibia I in five male paratypes (SYNU-Ar00515–519): 12.37–15.96. Tibia I in the other three female paratypes (SYNU-Ar00521–523): 9.62, 10.06, 10.19.

Habitat. Underside of overhang on rocky cliffs in mountainous area.

Distribution. Known only from the type locality (Fig. 1).

Discussion

Our study has identified two new species of *Pholcus* from north of the Sichuan Basin. To date, 21 species have been documented in eastern Sichuan. Recent research has revealed that Old World *Pholcus* species are believed to have originated in northern Indochina and southeastern Central Asia (the eastern Neo-Tethyan region), and the greatest species diversity is concentrated in southeast of the Xizang Plateau (Yao and Li 2025). Notably, eastern Sichuan falls within this

high-diversity region. However, the diversity of *Pholcus* in eastern Sichuan is currently mainly concentrated in west and north of the Sichuan Basin. Current knowledge of the distribution of *Pholcus* in eastern Sichuan suggests that this genus is highly likely to also be present in the highlands of southwestern Sichuan Basin. Therefore, additional targeted and concerted collecting efforts should be directed towards that part of the Sichuan Basin to further explore its potential biodiversity.

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Additional information

Conflict of interest

The authors have declared that no competing interests exist.

Ethical statement

No ethical statement was reported.

Use of AI

No use of AI was reported.

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Author contributions

ZY and LW designed the study. MY, JL, and ZY performed morphological species identification. MY, YZ, and JL finished the descriptions and took the photos. ZY, MY, YZ, and LW drafted and revised the manuscript.

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Data availability

All of the data that support the findings of this study are available in the main text.

References

Dong T, Zheng G, Yao Z, Li S (2016) Thirteen new species of the spider genus *Pholcus* Walckenaer, 1805 (Araneae: Pholcidae) from China. Zootaxa 4170(1): 1–40. https://doi.org/10.11646/zootaxa.4170.1.1

Gao Y, Gao J, Zhu M (2002) Two new species of the genus *Pholcus* from China (Araneae: Pholcidae). Acta Zootaxonomica Sinica 27: 74–77.

Huber BA (2011) Revision and cladistic analysis of *Pholcus* and closely related taxa (Araneae, Pholcidae). Bonner Zoologische Monographien 58: 1–509.

Huber BA, Eberle J, Dimitrov D (2018) The phylogeny of pholcid spiders: A critical evaluation of relationships suggested by molecular data (Araneae, Pholcidae). ZooKeys 789: 51–101. https://doi.org/10.3897/zookeys.789.22781

Khmelik VV, Kozub D, Glazunov A (2005) Helicon Focus 3.10.3. https://www.heliconsoft.com/heliconsoft-products/helicon-focus/ [Accessed 8 January 2025]

Li J, Zhang X, Yao Z (2024) A new spider species of the *Pholcus yichengicus* species group (Araneae, Pholcidae) from Hebei Province, northern China. Biodiversity Data Journal 12: e141640. https://doi.org/10.3897/BDJ.12.e141640

Li J, He Q, Li S, Yao Z (2025a) Filling a zoogeographical gap in China: Taxonomic descriptions of six new spider species of the *Pholcus phungiformes* species group (Araneae, Pholcidae). ZooKeys 1232: 285–310. https://doi.org/10.3897/zookeys.1232.145622

Li J, Li S, Zhang X, Yao Z (2025b) Diversity survey of *Pholcus* spiders (Araneae, Pholcidae) from eastern Sichuan and neighboring areas, with descriptions of six new species. ZooKeys 1240: 39–64. https://doi.org/10.3897/zookeys.1240.147905

Lu Y, Yang F, He Q (2021) *Pholcus maxian* sp. nov., the fifth endemic spider species of *Pholcus phungiformes* species-group (Araneae: Pholcidae) at the border between Jilin, China and North Korea. Biodiversity Data Journal 9: e72464. https://doi.org/10.3897/BDJ.9.e72464

Lu Y, Chu C, Zhang X, Li S, Yao Z (2022a) Europe vs. China: *Pholcus* (Araneae, Pholcidae) from Yanshan-Taihang Mountains confirms uneven distribution of spiders in Eurasia. Zoological Research 43(4): 532–534. [& Suppl. 1–78.] https://doi.org/10.24272/j.issn.2095-8137.2022.103

Lu Y, Yao Z, He Q (2022b) A new species of *Pholcus yichengicus* species-group (Araneae, Pholcidae) from Hebei Province, China. Biodiversity Data Journal 10: e81800. https://doi.org/10.3897/BDJ.10.e81800

Tong Y, Li S (2010) Eight new spider species of the genus *Pholcus* (Araneae, Pholcidae) from China. Zootaxa 2355(1): 35–55. https://doi.org/10.11646/zootaxa.2355.1.2

WSC (2025) World Spider Catalog. Version 26. Natural History Museum Bern. http://wsc.nmbe.ch [Accessed 8 September 2025]

Yang L, Fu C, Zhang Y, He Q, Yao Z (2024a) A survey of *Pholcus* spiders (Araneae, Pholcidae) from the Qinling Mountains of central China, with descriptions of seven new species. Zoosystematics and Evolution 100(1): 199–221. https://doi.org/10.3897/zse.100.116759

Yang L, He Q, Yao Z (2024b) Taxonomic study of four closely-related species of the *Pholcus yichengicus* species group (Araneae, Pholcidae) from China's Qinling Mountains: An integrated morphological and molecular approach. Zoosystematics and Evolution 100(1): 279–289. https://doi.org/10.3897/zse.100.115633

Yao Z, Li S (2012) New species of the spider genus *Pholcus* (Araneae: Pholcidae) from China. Zootaxa 3289(1): 1–271. https://doi.org/10.11646/zootaxa.3289.1.1

Yao Z, Li S (2025) Evolutionary history of Old World cellar spiders in the context of Neo-Tethyan sea-land transformations. Zoological Research 46(4): 912–920. https://doi.org/10.24272/j.issn.2095-8137.2025.325

Yao Z, Pham DS, Li S (2015) Pholcid spiders (Araneae: Pholcidae) from northern Vietnam, with descriptions of nineteen new species. Zootaxa 3909(1): 1–82. https://doi.org/10.11646/zootaxa.3909.1.1

Yao Z, Wang X, Li S (2021) Tip of the iceberg: species diversity of *Pholcus* spiders (Araneae, Pholcidae) in the Changbai Mountains, Northeast China. Zoological Research 42(3): 267–271. [& Suppl. 1–60.] https://doi.org/10.24272/j.issn.2095-8137.2021.037

Zhang F, Zhu M (2009) A review of the genus *Pholcus* (Araneae: Pholcidae) from China. Zootaxa 2037(1): 1–114. https://doi.org/10.11646/zootaxa.2037.1.1

Zhang F, Zhu M, Song D (2004) New discovery of the female spider of *Pholcus kimi* (Araneae: Pholcidae). Journal of Agricultural University of Hebei 27(5): 77–78.

Zhang X, Li X, Marusik YM, Yan M, Yang R, Zhang Y, Bu F, Ding Y, Wang M, Yao Z (2025) Spider taxonomy: A historical and global perspective. Zoological Research 46(6): 1387–1395. https://doi.org/10.24272/j.issn.2095-8137.2025.229

Zhao F, Jiang T, Yang L, He Q, Zheng G, Yao Z (2023a) Pholcid spiders of the *Pholcus phungiformes* species-group (Araneae, Pholcidae) from Liaoning Province, China: An overview, with description of a new species. ZooKeys 1156: 1–14. https://doi.org/10.3897/zookeys.1156.98331

Zhao F, Yang L, Zou Q, Ali A, Li S, Yao Z (2023b) Diversity of *Pholcus* spiders (Araneae: Pholcidae) in China's Lüliang Mountains: an integrated morphological and molecular approach. Insects 14(4): e364. https://doi.org/10.3390/insects14040364

Zhu K, Yao Z, Bai X, Li S (2018) Five new species of the spider genus *Pholcus* Walckenaer, 1805 (Araneae: Pholcidae) from China and Thailand. Zootaxa 4377(2): 235–253. https://doi.org/10.11646/zootaxa.4377.2.5